July 15, 2013

US EPA REGION 6 COMMENTS

on the

Hecla Limited
Draft Site Investigation Report
For the
Johnny M Mine and Adjacent Properties

Dated: March 2013

The U.S. Environmental Protection Agency (EPA) has reviewed the draft report entitled "Site Investigation Report for the Johnny M Mine and Adjacent Properties" and Appendices A - H (draft SI Report). It was reviewed for consistency with the August 16, 2012 Settlement Agreement and Administrative Order on Consent for Removal Action between Hecla Limited (Hecla), New Mexico Land LLC (NML) and EPA as well as the EPA-approved Sampling and Analysis Plan (SAP).

Overall, the draft SI Report is well written and the maps, cross-sections and tables are of good quality for reviewing the data collected during the SI. However, there are several concerns which must be addressed before EPA will approve the draft SI Report. These concerns are stated in the comments below.

GENERAL COMMENTS:

1. Executive Summary

Hecla and NML have made concluding statements in the draft SI Report that "mine-related materials in the project area are not impacting surface water or ground water quality on or downgradient from the project area." These conclusions are based on an analysis of ground water conditions at the former Johnny M Mine site (Site) by Itasca Denver, Inc. (Itasca) that has been included as Appendix I of the draft SI Report. Itasca states in Appendix I that it was directed to evaluate if ground water quality of the former domestic water wells in the Project Area or other ground water resources had been affected by mining-related activity in the Project Area or the presence of backfilled tailing sand in the underground workings.

A ground water investigation was not part of the scope of the SI nor was ground water sampling included in the SAP. Therefore, EPA declines to approve or disapprove

Appendix I. However, EPA does not object to the inclusion of the data in the SI Report. Additionally, Hecla shall insert a heading or note on this ground water report that states the following:

"EPA has declined to approve or disapprove this ground water report because it was not within the scope of the Site Investigation approved by EPA."

2. The boundary of the Project Area is not well defined on maps provided in the draft SI Report as additional samples were collected to the west of Area C along the primary arroyo during the field investigation. Area C needs to be expanded on all appropriate maps to include the area in Section 13 where soil samples AC-20, AC-21 and AC-22 were collected as well as the area defined by the colors or shapes depicted on Figures 4-4, 4-18, 4-31 and 4-32.

3. The soil cleanup value will be 3.5 pCi/g, which is inclusive of the background. This is a CERCLA cleanup and not a Uranium Mill Tailings Control Act (UMTRCA) Site. During the negotiation of the agreed order Hecla stated there was no 11e (2) mill tailings on the site.

4. The field techniques and data evaluation methods applied throughout the report are appropriate. In general, this report provides a technically supportable basis for developing an EE/CA for the Site and planning site remediation. It is important to note that volume estimates in the draft SI Report, though carefully calculated and technically justified, should not represent the basis for actual remediation and implementation of the cleanup standards should be determined through direct measurement of radium concentrations in residual soil when remediation commences.

5. Background Reference Area – Selection of the BRA is an important part of the draft SI Report. The selected location is upgradient from the areas of mine activities, which minimizes potential mine influenced contamination from surface runoff. However, it is not far from the previously active mine areas and the underground mine operations were located in the general direction of the background area. Also, the background location includes a large area, estimated to be about one-tenth of the section, which is significantly larger than used for our EPA property assessments, and larger than typically used for MARSSIM cleanup projects in our experience. The soil concentrations measured in the BRA concur with background concentrations determined for the property assessments. The gamma count rates and exposure rates in the BRA were similar to those obtained for

the property assessments, but the upper limit values ranged slightly higher than for our background areas.

SPECIFIC COMMENTS

1. Section 1.4.4 Man-Made Features, page 3:

Describe all the wells at the Site, including the two private drinking water wells at the former Jackson property (GMD-04 and GMD-05) as well as the shallow alluvial monitoring wells GW-7, GW-8, GW-8a and GW-9. Also describe the depths of the wells, formations pumped or monitored. Refer to the appropriate map in the draft SI Report which shows each well location. If they are not shown on a Site map, please revise a Site map to show the locations.

Section 1.4.5 Operational History, page 3:

The description of the operational history is inadequate with respect to mine water discharges. A thorough discussion is needed of mine water management from the beginning of mine development through the operational phase of mining, including mine water discharges, volumes, and pathway of drainage from the mine prior to construction of the pipeline and the sedimentation basins and water treatment. Please include a description, as well as supporting documentation, of the following:

- Start of mine dewatering and discharge operations, including year such operations started and ceased;
- Pumping rates and volumes of mine water discharged throughout the duration of mining operations and the mine development period, including volumes of mine water discharged prior to start of water treatment;
- Year treatment of mine water commenced;
- Year sedimentation ponds were constructed and operational;
- All permits obtained for water treatment and discharge;
- Pathway for flow of mine water discharges from the discharge point, along the primary arroyo before and after pipeline construction to the entry point(s) at San Mateo Creek; include a map showing all pathways in plan view, the sedimentation ponds and San Mateo Creek and the years such pathways were used.

The supporting documentation shall be included as an appendix.

2. Section 2.1 Scope of Activities, page 4, paragraph 3:

Revise the paragraph to first state that a ground water investigation was not performed as part of the SI and no conclusions are made on the potential impacts to ground water from the historic mining operations, including the mine water discharge operations. Also state that the evaluation of ground water and surface water conditions in the Project Area were conducted solely to support the preparation of the EE/CA.

3. Section 4.1.3.4 Summary of Down-hole Gamma Count Rates, Area C, page 19, paragraph 2:

The first two sentences of the paragraph read as follows: *"Table 4-12 lists findings for each Area C boring. Count rates were below, or essentially reached either one of the two cutoff values in all of the Area C borings."* However, count rates measured for all sampling locations in Area C exceeded the mean +2 standard deviation cutoff value of 5,211 counts per minute for the 1-inch by 1-inch detector. Further, out of 23 sampling locations, the gamma count rate exceeded the 23,546 counts per minute cutoff value of the 2 inch by 2 inch detector 21 times for the maximum and 19 times for the mean. Please revise the sentence accordingly.

4. Section 4.2.1 Geotechnical, page 21, paragraph 1:

Delete the first complete paragraph on page 21 regarding Itasca's assessment of ground water impacts (*see* General Comment No. 1 above).

5. Section 4.2.2.1 Radionuclides, Area B Samples, page 23, paragraph 1:

The reference to Table 4-27 should be Table 4-17. Please revise.

6. Section 4.2.2.1 Radionuclides, Area B Samples, page 23, paragraph 3:

Include at the end of the paragraph the following statement:

> *"However, it is noted that no soil or sediment sampling of the primary arroyo was performed within Area B."*

Also, because sampling of the primary arroyo was not performed in Area B, it shall be assumed that the concentrations of constituents with the arroyo are similar to those of the nearest arroyo samples collected in Area C for estimating volumes areas of contaminated soil and sediment. Please revise such calculations in the draft SI Report according.

7. Section 5 Conclusions, page 31, fifth bullet:

As discussed in General Comment No. 1, above, the ground water report (Appendix I) was not within the scope of the SI and EPA is declining to approve or disapprove it. Therefore, please delete the entire bullet statement.

8. Figure 3-1 1977 Historical Aerial Photo with Site Features:

The historical aerial photo does not depict the entire Project Area. Please include an additional figure that shows the 1977 photo covering all of Areas A, B, and C as well as the area west of Area C as far south as San Mateo Creek (i.e., the area shown on Figure 3-4). This figure will show the location of the arroyos and other drainage features during the time of operation. Also include a current aerial photo of the same area without the color overlays depicting Areas A, B and C so that a comparison of the 1977 and current surface drainage features can be made.

9. Figure 4-2 Geomorphological Characterization of Arroyos in Project Area:

The Project Area is much larger that the area depicted on Figure 4-2. It is important to show in map view the entire extent of the drainage features (arroyos) that conveyed discharged mine water to San Mateo Creek as well as the points of entry along the creek for the mine water. It will also allow comparison of the alignment of the arroyos to the predicted gamma exposure rates for the entire Project Area shown in Figure 4-4 and identification of any correlation between the arroyos and elevated radiation levels extending into Area C and west of Area C. Please expand this figure to show arroyos throughout Area B, Area C and the area of Section 13 west of Area C to where the arroyos meet San Mateo Creek.